

10 binarizing means for generating binarized data from an image signal corresponding to an image of the dot code read by said code reading means; and

15 information reproducing means for restoring binarized data generated by said binarizing means to [original] the multimedia information and to reproduce the multimedia information, wherein said binarizing means includes:

20 [region] image dividing means for dividing the [picked up screen] image of the dot code into a plurality of regions;

25 characteristic [amount] value extracting means for extracting [the] a characteristic [amount] value for binarization in [region units divided by said region dividing means] each of said plurality of regions;

threshold value calculating means for calculating [the] a threshold value for binarization in accordance with the characteristic [amount] value extracted by said characteristic [amount] value extracting means; and

25 said binarizing means binarizing the image signal corresponding to the image of the dot code based on [threshold value determining means for binarizing the image signal with] the threshold value calculated by said threshold value calculating means.

2. (Amended) An information reproducing system according to claim 1, wherein

5 said information recording medium has a reference [region for extracting the characteristic amount] area from which said characteristic value is extracted, and

1 said [region] image dividing means divides the [region] image of the dot code in such a manner that [the divided region] each of said plurality of regions includes at least one reference [region] area.

23. (Amended) An information reproducing system according to claim 22, wherein

5 said reference [region] area is at least one of a marker and an inhibition region adjacent to said marker, and

5 said characteristic [amount] value extracting means extracts the characteristic [amount] value from the [region] reference area.

24. (Amended) An information reproducing system according to claim 21, wherein said characteristic [amount] value extracting means extracts [the] a maximum value of [the] a luminance [in each of the divided regions].

5 25. (Amended) An information reproducing system according to claim 24, wherein said characteristic [amount extract] value extracting means has maximum value averaging means which extracts the maximum value of the luminance [in each of the divided

5 regions] and which averages the extracted maximum value in at least two [or more adjacent] fields or frames [in terms of time] adjacent in time to each other.

26. (Amended) An information reproducing system according to claim 21, wherein

5 said characteristic amount extracting means extracts [the] a maximum value of [the] a luminance of each of the [divided] plurality of regions as a first characteristic [amount] value and extracts [the] a minimum value of the luminance [of the overall screen] as a second characteristic [amount] value, and

10 said threshold value calculating means calculates the threshold value [for each region] from the maximum value and the minimum value of the luminance in accordance with a predetermined interior division ratio.

27. (Amended) An information reproducing system according to claim 26, wherein

5 said code reading means continuously read the dot code images, and

the minimum value of the luminance is extracted from one of the previous field and frame.

28. (Amended) An information reproducing system according to claim 26, wherein said characteristic [amount extract] value

extracting means has maximum value averaging means which extracts the maximum value of the luminance [in each of the divided regions] and which averages the extracted maximum value in at least two [or more adjacent] fields or frames [in terms of time] adjacent in time to each other.

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29. (Amended) An information reproducing system comprising:

code reading means for reading a desired dot code from an information recording medium on which multimedia information including at least any one of audio information, image information and digital code data has been recorded in the form of a dot code which can optically be read;

10 binarizing means for generating binarized data from an image signal corresponding to the dot code read by said code reading means; and

information reproducing means for restoring binarized data generated by said binarizing means to [original] the multimedia information and to reproduce the multimedia information, wherein said binarizing means includes:

15 peak value detection means for detecting [the] a maximum value and [the] a minimum value of [the] a luminance from a predetermined detection region;

code detection means for detecting whether or not a code exists in said predetermined detection region;

20 minimum value replacing means for replacing the minimum
value in the predetermined detection region with the minimum
value of one of the previous field and frame [in a case where]
when said code detection means does not detect a code; and
threshold value calculating means for calculating the
threshold value for binarization for the [same] predetermined
detection region of one of a next field and a next frame from the
detected maximum value and the detected or replaced minimum value
in accordance with a predetermined interior division ratio.

3/0. (Amended) An information reproducing system according to claim 29, wherein said code detection means has peak ratio determining means for determining whether or not [the] a ratio of peak values detected by said peak value detection means is larger than a predetermined value.

31. (Amended) An information reproducing system comprising:

code reading means for reading a desired dot code from an information recording medium on which multimedia information including at least any one of audio information, image information and digital code data has been recorded in the form of a dot code which can optically be read;

10 binarizing means for generating } binarized data from an image
signal corresponding to the dot code read by said code reading
means; and

15 information reproducing means for restoring binarized data
generated by said binarizing means to [original] the multimedia
information and to reproduce the multimedia information, wherein
said binarizing means includes:

20 peak value detection means for detecting [the] a maximum
value and [the] a minimum value of [the] a luminance from a
predetermined detection region;

25 code detection means for detecting whether or not a code
exists in said predetermined detection region;

30 minimum value replacing means for replacing the minimum
value in the predetermined detection region with the minimum
value of the adjacent detection region [in a case where] when
said code detection means does not detect a code; and

35 threshold value calculating means for calculating the
threshold value for binarization for the [same] predetermined
detection region of one of a next field and a next frame from the
detected maximum value and the detected or replaced minimum value
in accordance with a predetermined interior division ratio.

12. (Amended) An information reproducing system according
to claim 11, wherein said code detection means has peak ratio
determining means for determining whether or not [the] a ratio of

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5 peak values detected by said peak value detection means is larger than a predetermined value.

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36. (Amended) An information recording medium for use in an information reproducing system having code reading means for reading a desired dot code from an information recording medium on which multimedia information including at least any one of 5 audio information, image information and digital code data has been recorded in the form of a dot code which can optically be read;

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10 binarizing means for generating binarized data from an image signal corresponding to the dot code read by said code reading means; and information reproducing means for restoring binarized data generated by said binarizing means to [original] the multimedia information and to reproduce the multimedia information, said information recording medium comprising:

15 data dots which correspond to the contents of multimedia information and which can optically be read; and

20 a reference dot serving as a reference when said binarizing means detects [the] a maximum value and [the] a minimum value of [the] an image signal level corresponding to the dot code, detects a dot from a code data binarized [by] based on a threshold value calculated from the maximum vale and the minimum value in accordance with a predetermined interior division ratio

and modifies the interior division ratio in such a manner that area of the detected dot approaches a predetermined target value.

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37. (Amended) An information recording medium according to claim 36,¹³ wherein a plurality of the reference dots are recorded in an image pickup region of the information recording medium.

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38. (Amended) An information recording medium according to claim 36,¹³ wherein said information recording medium has a reference [region] area for use when said binarizing means extracts the characteristic amount for binarization.

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39. (Amended) An information recording medium according to claim 36,¹³ wherein said information recording medium has dot interval measuring dots for measuring a dot interval for correcting at least one of the area of the [reference] dot detected by said binarizing means and the predetermined target value.

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40. (Amended) An information recording apparatus for recording multimedia information including at least any one of audio information, image information and digital code data in the form of a dot code which can optically be read, comprising:

5 reference dot recording means for recording at least two types of reference dots having at least different areas [of] or shapes;

10 reference dot reading means for reading the reference dots recorded by said reference dot recording [means to binarize] by binarizing the read reference dots;

C2 reference dot selection means for [subjecting the area of each] selecting a reference dot that enables a difference between an area of each reference dot read by said reference dot reading means and a predetermined [reference] target value to [a comparison to select a reference dot having the different] become smaller than a predetermined [threshold] value; and

recording means for recording a dot code corresponding to multimedia information in accordance with the reference dot selected by said reference dot selection means.

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41. (Amended) An information recording apparatus according to claim 40, wherein said at least two or more types of said reference dots are recorded in such a manner that at least one of the area and the shape [is different at each of predetermined steps of a minimum resolving power of said information recording apparatus] varies in units of a predetermined number of minimum print units.

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42. (Amended) An information recording apparatus for recording multimedia information including at least any one of audio information, image information and digital code data in the form of a dot code which can optically be read, comprising:

5 reference dot recording means for recording reference dots having different recording densities;

C2 reference dot reading means for reading the reference dots recorded by said reference dot recording means to binarize the read reference dots;

10 recording density adjustment means for [subjecting the] adjusting a recording density such that a difference between an area of each of the reference dots read by said reference dot reading means and a predetermined [reference] target value [to a comparison to adjust the recording density in such a manner that the difference is] becomes smaller than a predetermined [threshold] value; and

15 recording means for recording a dot code corresponding to multimedia information in accordance with the recording density adjusted by said recording density adjustment means.

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43. (Amended) An information recording apparatus for recording multimedia information including at least any one of audio information, image information and digital code data in the form of a dot code which can optically be read, comprising:

5 reference dot recording means for recording at least two or
more types of reference dots having different recording
densities;

10 reference dot reading means for dividing a picked up screen
in such a manner that only one reference dot recorded by said
reference dot recording means is included in a divided region and
binarizing each divided region to read the reference dot [to
binarize the reference dot];

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15 [density selection means for subjecting the] recording
density adjustment means for adjusting a recording density such
that a difference between an area of each reference dot read by
said reference dot reading means and a predetermined [reference]
target value [to a comparison and for selecting the density of
the reference dot having the difference] becomes smaller than a
predetermined [threshold] value; and

20 recording means for recording a dot code corresponding to
multimedia information in accordance with the recording density
selected by said density selection means.